

A Blueprint for Learning Science Fourth Grade

The ***Blueprint for Learning*** is a companion document for the Tennessee Curriculum Standards which are located at www.tennessee.gov/education. Although the curriculum adopted by the State Board of Education in its entirety remains on the web for additional reference, this reformatted version makes the curriculum more accessible to classroom teachers.

Key features of the reformatted version are:

- All grades for each content area are provided in the printed manual.
- The skills within each grade are identified as to whether they are introduced, developed, or have been mastered and are now being maintained at that level.
- The skills correlating with the state criterion referenced test (CRT) are also identified for classroom instruction.
- In the Language Arts section, the assessed skills (performance indicators) are identified not only for the state's CRT in grades 3-8 but also for the writing assessment in grades 5 and 8.
- This guide makes the planning of instruction for students with varying abilities easier to accomplish.
- Teachers can plan and work together to improve school wide student achievement through curriculum integration across content areas and grade levels.
- Teachers can identify current grade level skills as well as those needed to prepare students for the next year.

Skills are coded and identified as Introduced (I), Developing (D), State CRT and Writing Assessed (A), and Mastered and Maintained (M).

- Introduced (I) skills are new skills presented at that grade level. Even though a skill is considered introduced at a grade level, some development would also occur.
- Developing (D) skills are skills that have been introduced at a previous grade level. At this stage of development the skills are being refined and expanded.
- Assessed (A) skills are those skills that are correlated to the state performance indicators for the CRT portion of the achievement test (grades 3-8) and the writing assessment (grades 5 and 8). The identified skills are formally assessed through the CRT; however, all skills are informally assessed in the classroom.
 - For the purpose of data reporting, assessed (A) skills are grouped into categories indicating related skills and knowledge. For example, grammar, mechanics, and usage are grouped together under the grammar (G) category. Each state assessed indicator included on the Blueprint carries a legend showing that it is assessed and indicating the category in which it will be reported (e.g., Assessed/Grammar=A/G).
- Mastered and Maintained (M) indicates a skill that has been introduced, developed, and assessed. Even though a skill may be formally assessed, the development and expansion of the skill still continues.

KEY

I = Introduced D = Developing A = State Assessed M = Mastered

REPORTING CATEGORY

SF = Structure & Function of Organisms ME = Motion & Forces, Forms of Energy E = Ecology M = Matter
LC = Life Cycles & Biological Change ER = Earth Features & Resources SC = Space, Weather, & Climate

**Note: "A" indicates the state curriculum (CRT) assessment only.
All the skills ("I"... "D"... "A"... "M") are addressed in the classroom assessment.**

SCIENCE **Fourth Grade**

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

Key	Reporting Category	
I		Examine a variety of plant and animal cells.
A	SF	Identify the function of specific plant and animal parts.
A	SF	Recognize the basic structure of plant and animal cells.
A	SF	Identify animal and plant cell structures and functions.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

I		Examine and relate how plants and animals interact with each other and their environment.
A	E	Select plants and animals found in a specific environment.
A	E	Recognize how plants and animals interact with each other in their environment.
I		Provide evidence and give examples of environmental changes caused by living things.
A	E	Identify ways that organisms affect their environment.

Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

D		Explain that animals must obtain food and use food for energy.
A	SF	Compare how various animals obtain and use food for energy.
A	SF	Match the edible parts of plants with particular plant structures.
D		Compare how specific animals obtain oxygen (e.g., gills, lungs).
A	SF	Match the animal with their means of obtaining oxygen.

Heredity and Reproduction

The student will understand the basic principles of inheritance.

D		Compare the traits of offspring with those of the parent.
A	LC	Distinguish offspring from the parent.
A	LC	Recognize the relationship between reproduction and the survival of a species.
D		Describe the life cycle of an animal (i.e., frog, mealworm).
A	LC	Select the illustration that depicts the life cycle of a specific organism.

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Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

D		Classify animals according to their characteristics.
A	E	Match a plant or animal adaptation to a particular environmental condition.
A	E	Compare and contrast groups of organisms according to their major features.
A	E	Match the form of structures found in living things to their function.

Biological Change

The student will understand that living things have changed over time.

D		Examine fossils and explain how they provide information about the types of organisms that lived in the past.
A	LC	Match fossil evidence with organisms that are alive today.
A	LC	Identify animal and plant populations as thriving, threatened, endangered, or extinct.
A	LC	Infer possible causes of extinction.

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

D		Identify and order the planets in the solar system by their distance from the sun.
A	SC	Determine the order of the planets according to their distance from the sun.
A	SC	Recognize that the length and position of a shadow are related to the location of the sun.
D		Demonstrate how the earth rotates and revolves.
D		Simulate the changing shape of the moon.
A	SC	Identify the phases of the moon in the correct sequence.

Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate.

D		Identify and use the proper tools to measure atmospheric conditions (i.e., barometer, thermometer, anemometer, and rain gauge).
A	SC	Identify the cloud type(s) associated with specific weather conditions.
A	SC	Choose the appropriate instrument for measuring a given atmospheric condition.
I		Describe how oceans affect weather and climate.
A	SC	Identify the basic features of the water cycle.

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Earth Features

The student will understand that the earth has many geological features that are constantly changing.

I		Observe and describe how wind and water change the earth's geological features.
A	ER	Recognize specific geological features.
A	ER	Determine how wind and water change the earth's geological features
I		Identify the earth's layers.
A	ER	Identify the layers of the earth.

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

D		Classify earth materials according to their use.
A	ER	Choose the appropriate use for an earth material.
I		Identify the different components of soil.
A	ER	Identify the basic characteristics of soil.
A	ER	Distinguish between renewable and nonrenewable resources.

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

A	ME	Recognize the effects of gravity.
A	ME	Select factors that have the greatest effect on the motion of an object.
A	ME	Determine how speed affects distance traveled over time.
A	ME	Recognize simple machines (i.e., inclined plane, lever, and pulley)
I		Identify factors that affect the amount of friction.

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

M		Describe and compare observations made of objects using the naked eye, magnifying glass, and microscope.
M		Describe matter by its observable physical properties (i.e., color, shape, texture, weight, volume, and length).
A	M	Select an object according to its observable physical properties.
A	M	Identify states of matter.
A	M	Determine how various types of matter change state.

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Interactions of Matter

The student will investigate the interactions of matter.

A	M	Choose features associated with physical changes.
A	M	Identify characteristics of different types of mixtures.
A	M	Determine methods for separating mixtures.

Energy

The student will investigate energy and its uses.

A	ME	Identify different forms of energy.
I		Describe how light behaves when it strikes different surfaces.
I		Explain how the volume and pitch of sound are controlled.
A	ME	Distinguish between the volume and the pitch of sound.
I		Construct and explain a simple electrical circuit.
A	ME	Select a simple electrical circuit.
I		Categorize materials as conductors or insulators.
A	ME	Recognize that various materials conduct heat.

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